

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:

Arthur W. Chester et al.

Serial No. 09/351,147

Filed: July 12, 1999

For: CATALYTIC PRODUCTION OF LIGHT
OLEFINS FROM NAPHTHA FEED

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Examiner: Walter D. Griffin

Group Art Unit: 1764

Docket No. 10164-1

Date: July 17, 2002

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APPELLANTS' REPLY BRIEF UNDER 37 CFR 1.192(b)(1)

Commissioner for Patents
Washington, D.C. 20231

Sir:

Appellants submit this reply brief to the honorable Board of Patent Appeals and Interferences in response to the Examiner's Answer, mailed May 17, 2002.

This Reply Brief is being filed in triplicate.

Arguments

1. The Examiner's Answer has countered appellants' argument that EP 0323736 "does not *positively* recite introducing phosphorus oxide" (emphasis added) into the catalyst (Examiner's Answer, Page 5, lines 10-11). Yet the Examiner's argument relies upon *conditional* language--"the zeolite *may optionally* include various elements ion exchanged, impregnated, or otherwise deposited thereon" (Id. at lines 12 and 13, emphasis added). The Examiner goes on to admit that "the inclusion of these elements is not preferred" in the reference (Id. at lines 13 and 14), but nevertheless insists that "the reference clearly discloses that they *could* be included in the catalyst" (Id. at line 14, emphasis added).

The Examiner has further urged that EP 0323736 teaches introducing phosphorus into the catalyst by arguing that "on page 3, lines 42-54, the reference discloses that the

zeolite may include various impregnated oxides such as oxides of phosphorus” (Id. at page 5, lines 13 and 14). The Examiner relies upon the reference’s disclosure that “zeolites can be free of oxides incorporated into the zeolites by impregnation and then gives examples of these oxides that include oxides of phosphorus” (Id. at lines 17 to 19) and concludes that “use of the language ‘can be free’ also indicates that the zeolites can include these oxides” so that “the zeolites *could* include phosphorus in the form of phosphorus oxide (Id. at lines 19 to 21, emphasis added).

Appellants respectfully direct the Board’s attention to the italicized conditional language above which falls well short of a positive recitation. Oxides of phosphorus are discussed only negatively, i.e., in the context of what oxides are *not* present in the zeolite. The European Patent does in fact positively recite components added to zeolites at page 3, lines 26 to 41. However, this passage is completely silent in regard to phosphorus and its oxides.

Thus the reference lacks the positive recitation required of an anticipating reference. As previously observed by Appellants, to constitute anticipation, all material elements of a claim must be formed in one prior art source. In re Marshall (CCPA 1978) 577 F2d 301, 198 USPQ 344; In re Kalm (CCPA 1967) 378 F2d 959, 154 USPQ 10. Clearly, the reference’s teaching that phosphorus oxide-*free* zeolites can be used does not necessarily imply that phosphorus oxide-containing zeolites are used. Indeed, the reference can be readily construed as teaching away from the present invention, inasmuch as it only positively recites using phosphorus oxide-free materials.

2. The Examiner has maintained his argument that the EP reference teaching clearly discloses that the catalyst matrix material may be all inactive material. Appellants maintain their earlier argument that the reference specifically teaches that “matrix or binder materials include active *and* inactive materials and synthetic or naturally occurring zeolites as well as inorganic materials such as clays, silica and/or metal oxides, e.g., alumina” (page 4, lines 12-14, emphasis added). Moreover, although the EP reference’s Example 1 utilizes “aluminosilicate ZSM-5 bound in a mixture of silica and naturally occurring clay” (page 6, lines 11 to 12), there is no teaching that the naturally occurring clay is not active.

Furthermore, claim 5 of the EP reference appears to conform with the reference's above-noted teaching requiring that "matrix or binder materials include active *and* inactive materials." Indeed, Claim 5 of the EP reference specifies "a binder material consisting essentially of alumina *or* silica in combination with alumina" (page 8, lines 17 and 18)--each combination requiring the presence of an active material. Thus the reference again fails to provide all material elements of the claims necessary to constitute anticipation.

3. With regard to present claims 8 and 9 that require the co-feeding of steam, the Examiner maintains his reliance on EP 0323736 as applied to claim 1 above, and further in view of U.S. Patent No. 5,898,089 to Drake et al. (Drake). Insofar as the Examiner considers both references "disclose similar processes for producing aromatics," the Examiner maintains his conclusion it would have been obvious to one of skill in the art at the time the invention was made to have modified the EP process by including steam with the feed as taught by Drake in the amount claimed in order to effectively convert the feed to olefins and aromatics.

Appellants maintain their argument that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. In re Geiger (CAFC 1987) 815 F2d 686, 2PQ2d 1276; In re Fine (CAFC 1988), 5 USPQ2d 1596. Given the EP reference's teaching against the use of phosphorus-containing catalysts as noted above, it is highly unlikely that one skilled in the art would combine this reference with Drake. Drake discloses using a catalyst comprising acid-treated zeolite, such as ZSM-5, to process fluid C₄-C₃₀ hydrocarbon feed, such as gasolines from cracking processes and naphthas (col. 9, lines 39-46) to convert hydrocarbons to C₆-C₈ aromatic hydrocarbons and olefins. The catalyst is promoted with a wide variety of compounds including phosphorus-containing compounds that can be converted to phosphorus oxide for "reducing coke deposition." The reference is also silent concerning use of "substantially inert matrix material" as required by the present application" and teaches an active matrix material, alumina, as preferred binder (column 3, lines 17-18), although the reference also teaches the presence of clay in the catalyst.

Drake is also completely silent concerning the silica to alumina molar ratio of its catalyst. There is no suggestion or disclosure that the catalyst should contain the "relatively high silica zeolites" having an initial silica/alumina molar ratio of not greater than 70, or preferably above 5 which the present invention requires (*see*, specification at page 8, lines 30 to 32). It is thus respectfully urged that despite Drake's teachings concerning the co-feeding of steam, one skilled in the art would lack any incentive to combine these two references.

Accordingly, it is respectfully submitted that the present claims 8 and 9 meet the requirements of 35 USC 103(a) notwithstanding the teachings of the EP reference and Drake. In view of this, reversal of this rejection by the Honorable Board is respectfully requested.

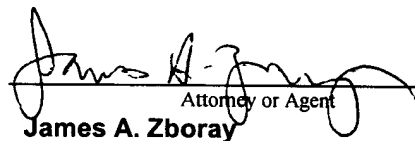
CONCLUSION

Appellants respectfully submit that the foregoing arguments obviate all of the outstanding rejections in this case and place the application in condition for immediate allowance. Allowance of this application is therefore earnestly solicited.

Respectfully yours,

July 17, 2002

Date of Signature



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